OCED
Office of Clean Energy Demonstrations

THE OFFICE OF
CLEAN ENERGY DEMONSTRATIONS

Western Region
Long-Duration Energy Storage Regional Briefing

10/02/2023

Office of Clean Energy Demonstrations

U.S. Department of Energy

Welcome!

Welcome & Meeting Objectives

- The Office of Clean Energy Demonstrations (OCED) at DOE recently announced the selection of nine long-duration energy storage projects, which include at seven locations in the western region of the country
- We at DOE wanted to connect to help clarify our process and the opportunities to plug in and help shape your community's energy future
- Engage with DOE and the commercial partners involved in these long-duration energy storage demonstration projects

Introductions

Emmanuel Taylor

Facilitator

Juan Alvarez,
LDES
Program Manager,
Project Management,
OCED

Marcela Mulholland,
Stakeholder
Engagement Lead - LDES,
Engagement Office,
OCED

Opening Remarks

Agenda

- 5:00 – 5:05 | Welcome
- 5:05 – 5:10 | Opening Remarks
- 5:10 – 5:15 | OCED 101
- 5:15 – 5:20 | LDES Overview
- 5:20 – 5:25 | Community Benefits Plan Overview
- 5:25 – 5:55 | Project-Specific LDES Overview
- 5:55 – 6:00 | Next Steps & Opportunities for Engagement
- 6:00 – 6:25 | Feedback Session
- 6:25-6:30 | Wrap-Up & Close

*Times are in PT

OCED Overview

OCED Mission

Deliver clean energy technology **demonstration projects at scale** in partnership with the **private sector** to **accelerate deployment**, **market adoption**, and the **equitable transition** to a decarbonized energy system.

OCED Mandate

SCALE EQUITABLE, CLEAN ENERGY

Help enable 100% clean electricity by 2035 and net zero emissions by 2050 through an equitable energy transition

UNLOCK NEW INVESTMENT

Unlock and scale trillion-dollar clean energy follow on investment from the private sector and other sources of capital

DE-RISK TECHNOLOGY

Maintain risk-based, balanced, and defensible portfolio of investments

SERVE AS CENTER OF EXCELLENCE

Serve as primary DOE office to deliver full scale clean energy demonstration projects and project management oversight excellence

ENGAGE & COLLABORATE

Leverage private sector and broader energy ecosystem to inform OCED and DOE technology commercialization efforts

OCED Scope

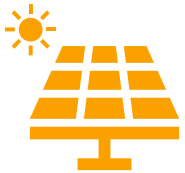
- Regional Clean Hydrogen Hubs ($8 billion)
- Advanced Reactor Demonstrations ($2.5 billion)
- Carbon Management ($7 billion)
- Industrial Demonstrations ($6.3 billion)
- Long-Duration Energy Storage Demonstrations ($505 million)
- Energy Improvements in Rural or Remote Areas ($1 billion)
- Clean Energy Demonstrations on Mine Land ($500 million)
- Other Initiatives ($133 million)

Long-Duration Energy Storage (LDES)

Why Long Duration Energy Storage

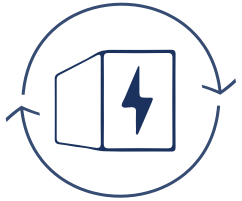
Cheaper, longer energy storage can:

Support the **expansion of renewables** like solar and wind by providing stability, flexibility, and optionality to the grid



Reduce the need for new fossil fuel capacity by **firming renewables**

Enhance **resiliency of the grid** and at critical facilities (e.g., hospitals, affordable housing) **during extreme weather** and other disruptive events

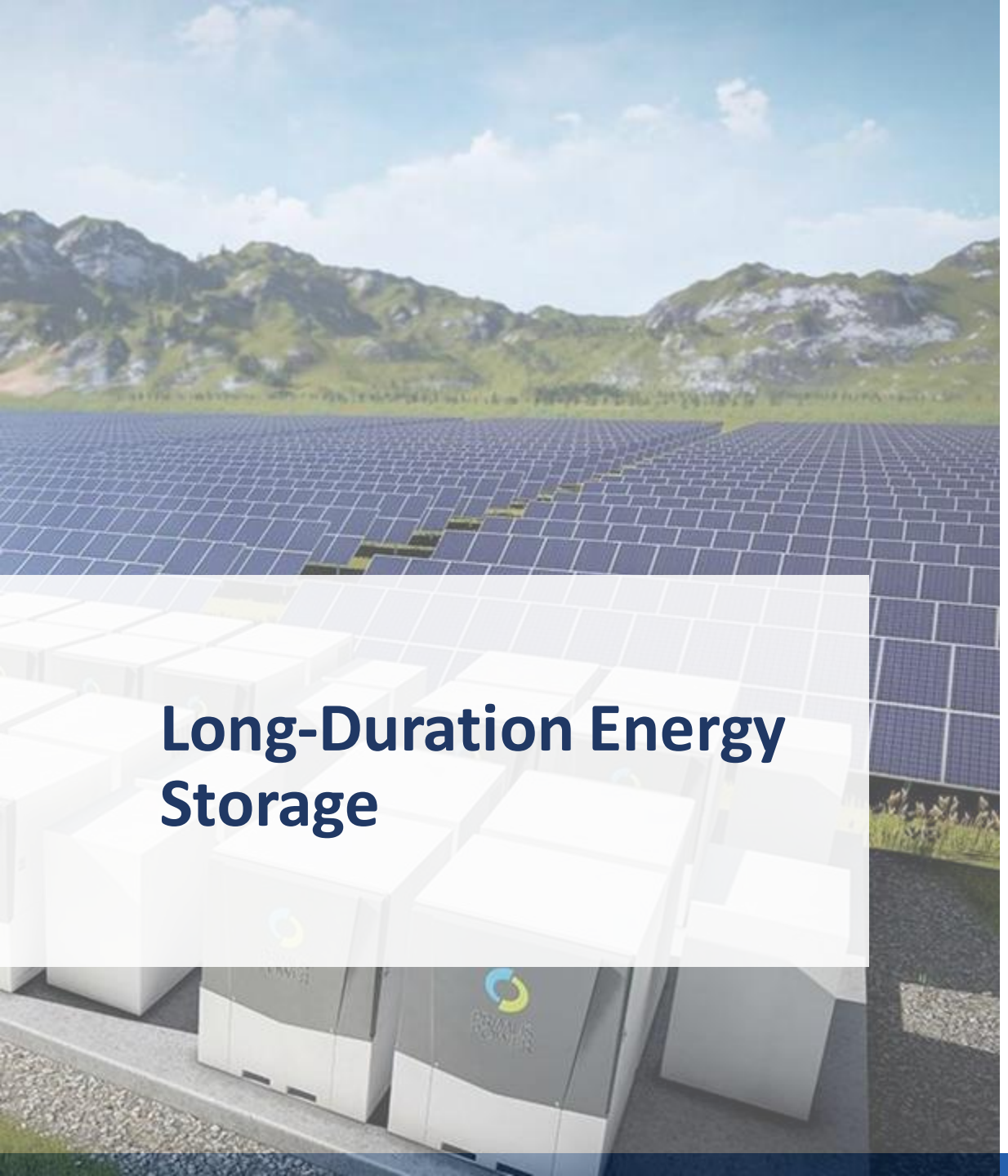


Diversify the domestic energy storage **supply chain**

Overview

- As we move towards a power grid that relies on more variable energy, **the need for LDES is critically important.**
  - Of the 1,325 current energy storage projects in North America, only 25 (or 2%) have duration of over 10 hours.

- The projects announced last week will help increase the **availability and market viability of LDES** and facilitate the deployment of clean, reliable energy across the nation.
  - The nine (9) projects selected for award negotiation include collaborations among communities and businesses, tribal nations, utility providers, hospitals, clean tech entrepreneurs, labor unions and retirement communities.



Long-Duration Energy Storage

Energy Storage: The capture of energy produced at one time for use later to reduce imbalances between energy demand and energy production.

LDES: Energy storage systems capable of delivering electricity for 10 hours or longer.

OCED's LDES Demonstrations:

Aims to fund projects that will overcome the technical and institutional barriers that exist for full-scale deployment with a focus on a range of different technology types for a diverse set of regions.

Current Status:

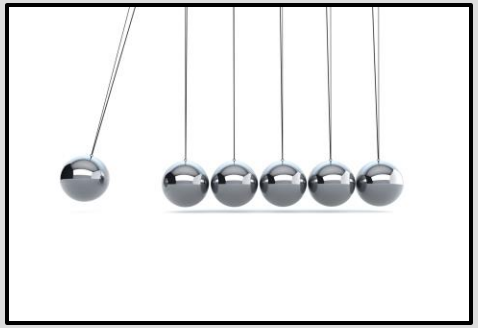
- **September 22, 2023: <u>DOE announced nine projects selected for award negotiations.</u>**

Types of LDES Technology Selected

Mechanical

Compressed carbon dioxide (CO_2) energy storage

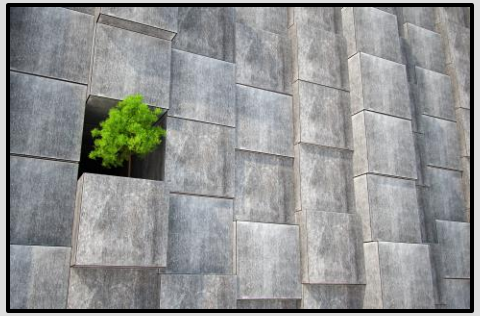
- Stores electric energy in the form of potential energy (compressed CO_2).



Thermal

Sensible heat storage

- Turns grid electricity into heat using large-scale heat pumps. Heat is stored and used to generate power when needed.



Electrochemical

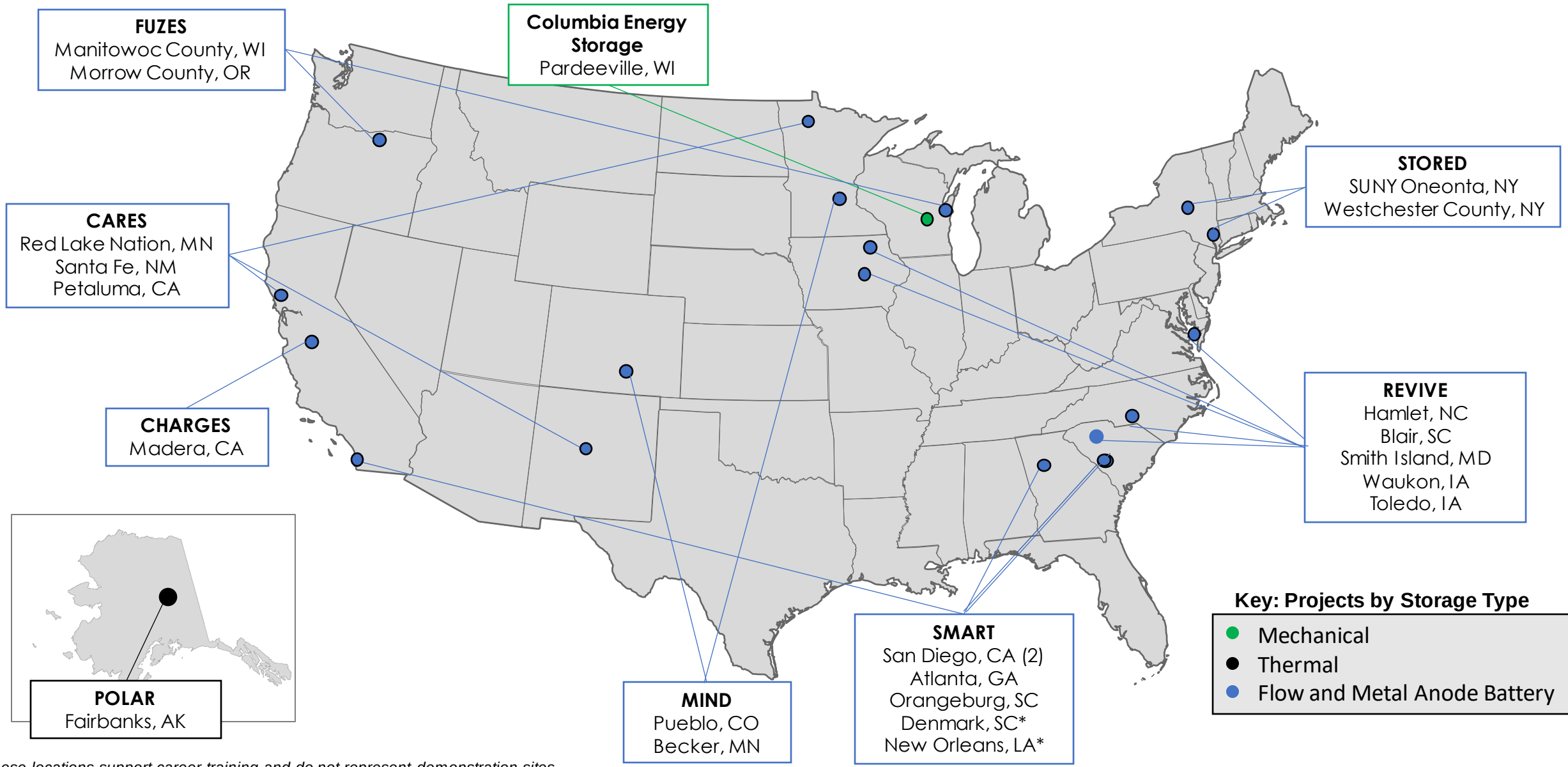
Flow batteries

- Uses liquid positive and negative electrode material stored in tanks. Fluids flow past reaction site to produce power. Effectively decouples energy and power.

Non-flow batteries

- Similar to a car, phone, or rechargeable AA batteries.

Selected Project Locations



*These locations support career training and do not represent demonstration sites.

Phased Approach to Project Management

Community Benefits Plans

Prioritizing Community Benefits in OCED Projects

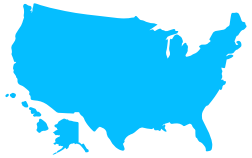
OCED **requires** applicants to include a Community Benefits Plan (CBP) to help ensure broadly shared prosperity in the clean energy transition.

By **prioritizing community benefits**, we can ensure the next chapter in America's energy story is marked by greater justice, equity, security, and resilience.

Community & Labor Engagement

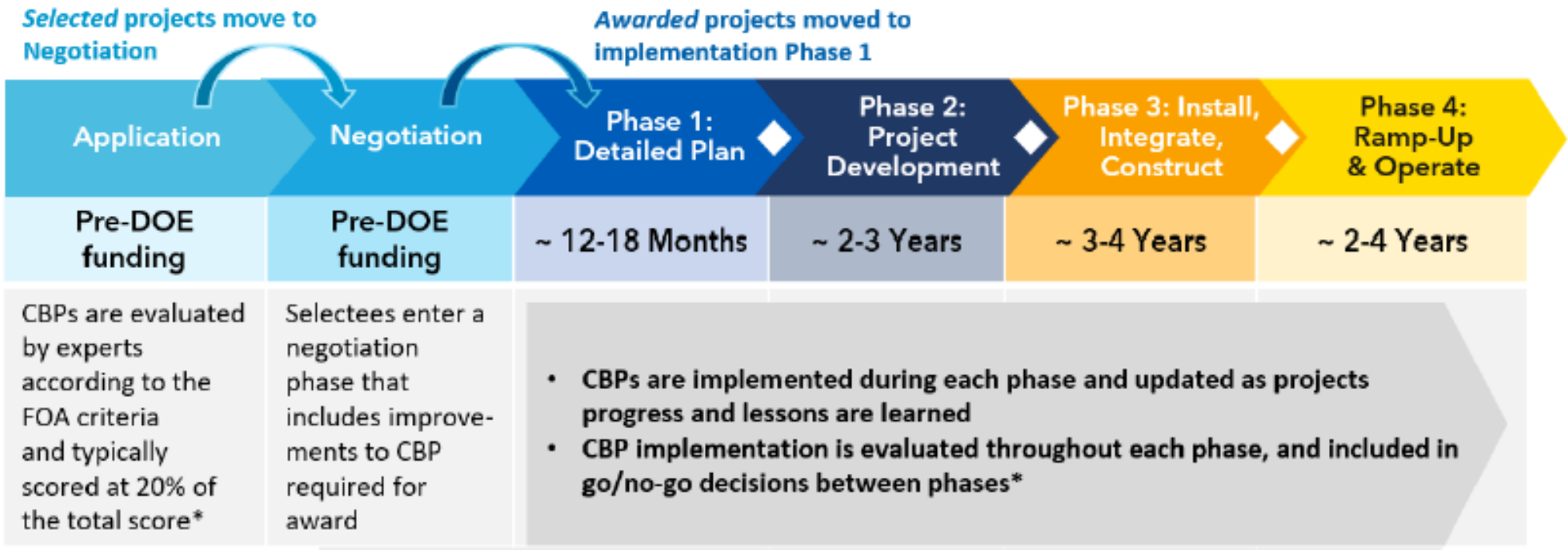
Diversity, Equity, Inclusion, & Accessibility

Investing in the American Workforce



Justice40 Initiative

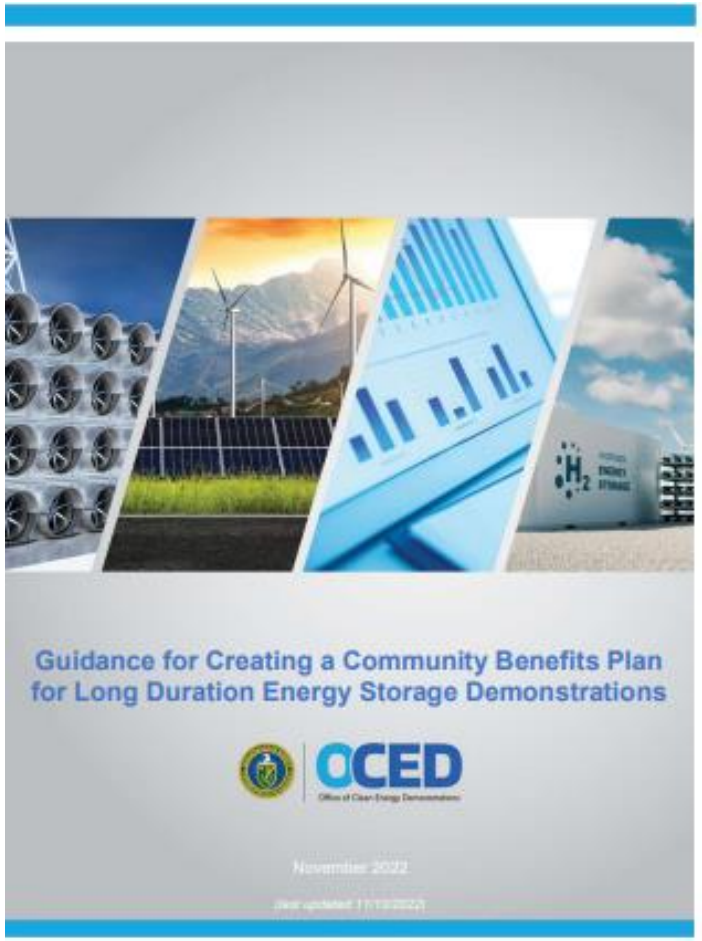
Community Benefit Plans - Implementation Requirements per Phase



**CBPs are considered alongside assessments of engineering, procurement, and construction; business development and management; permitting and safety; and technical data and analysis.*

Strong CBPs

- Demonstrate moving beyond a vision or assessment into **actionable goals, outcomes, and implementation steps** supported by adequate money, people, and time resources
- Include mechanisms for **accountability to and transparency with** impacted communities
- Propose clear **metrics** to measure success
- Match proposed actions to the **needs and priorities** of impacted communities
- Robustly address all four topic areas
- **Minimize and mitigate negative impacts** and harm, especially to already overburdened communities
- **Create good-paying jobs**, equitable access, and invest in workforce development



OCED FOA CBP Guidance docs available with each FOA at: https://oced-exchange.energy.gov/

Project Overviews

Communities Accessing Resilient Energy Storage (CARES)

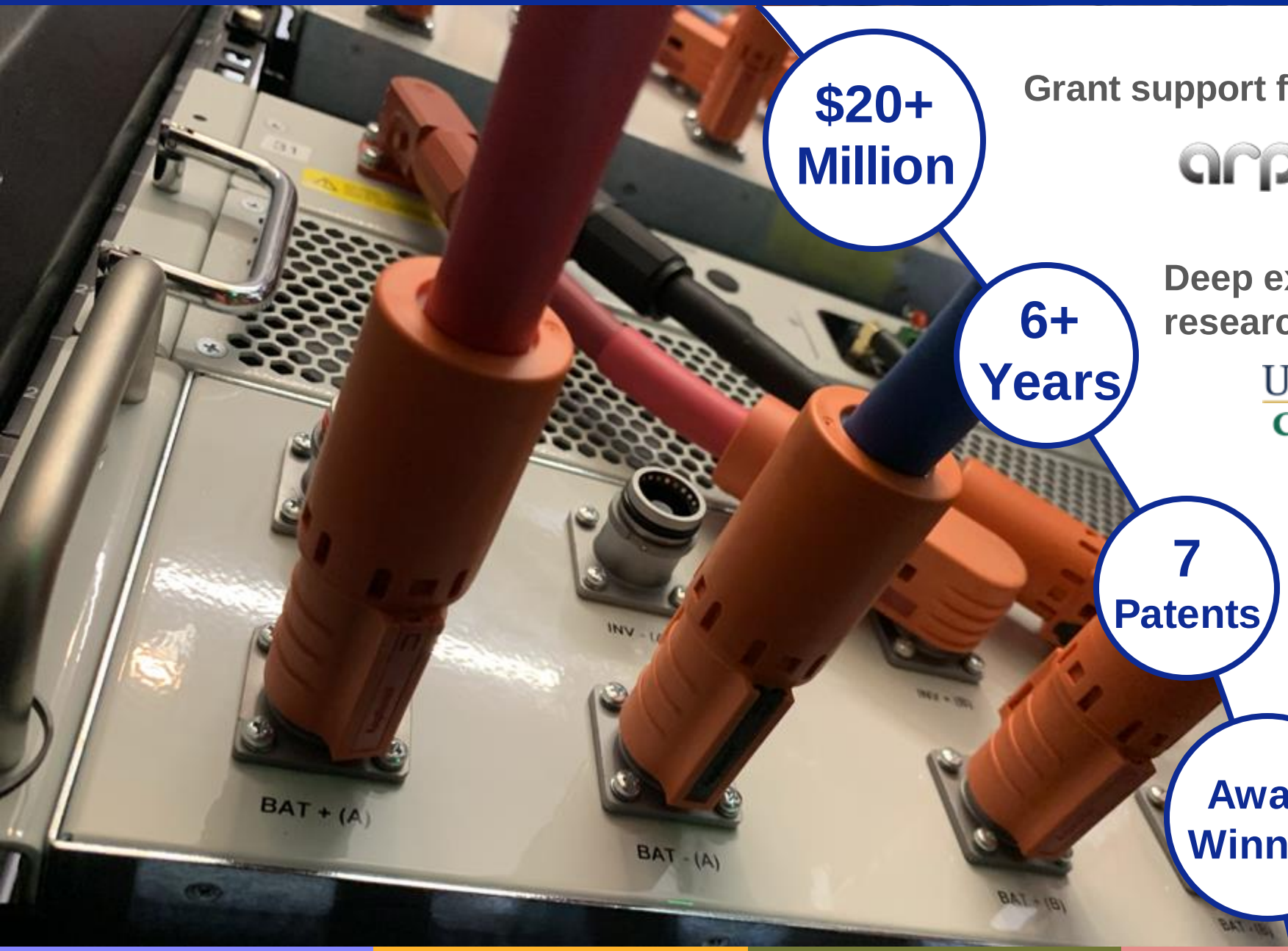
- **Prime:** ReJoule
- **Location(s):** Red Lake Nation (Minnesota), New Mexico, California
- **LDES Technology:** Second Life EV Batteries
- **Highlights:**
  - Makes use of retired batteries from electric vehicles
  - Provides demand reduction, load shifting, and resilience at two affordable housing complexes and a Red Lake Tribal Nation tribal workforce development campus
  - Engages a nonprofit to build career pathways in clean energy technology for youth, women, and individuals

smartville

LONG-DURATION ENERGY STORAGE USING REPURPOSED EV BATTERIES

OCED Regional Briefing – LDES Awards
October 2, 2023

Smartville Inc. Founded in 2019



$20+ Million

Grant support from DOE and CEC

6+ Years

Deep expertise in second-life battery research and development

7 Patents

Filed in battery second-life system integration, power conversion, logistics

Award Winning

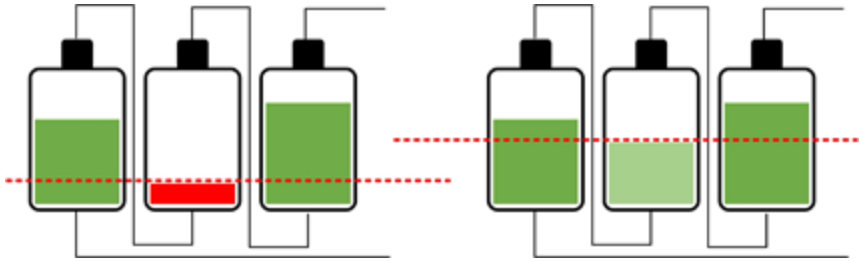
American-Made Battery Recycling Prize winner

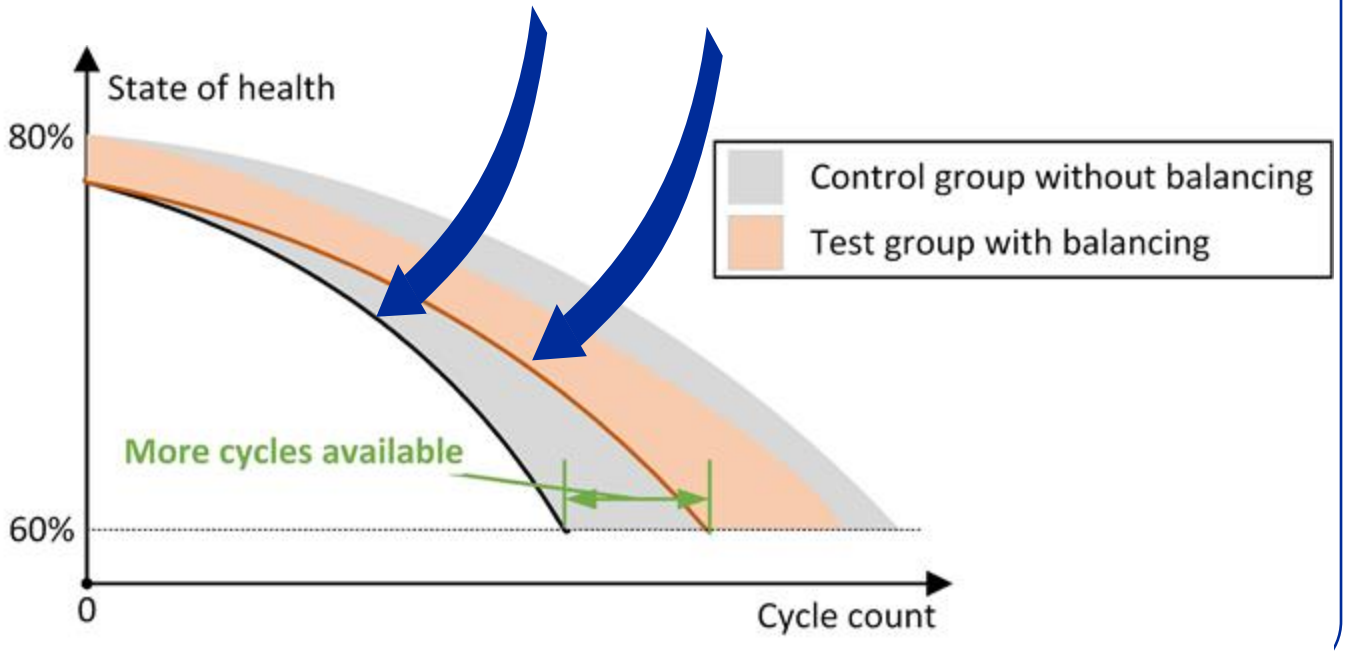
Solar Prize finalist

Technology

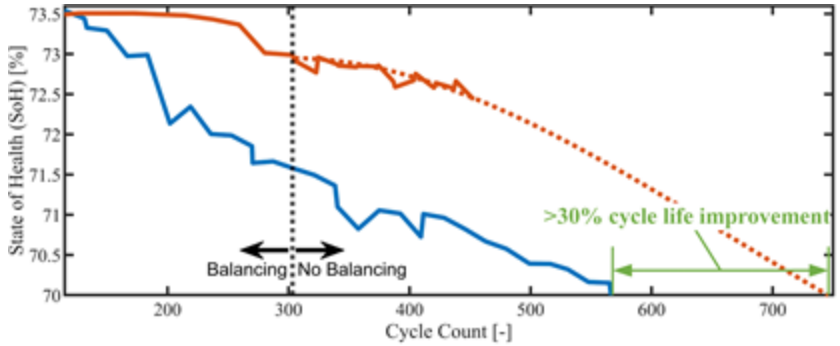
Giving Used EV Batteries a Second-Life

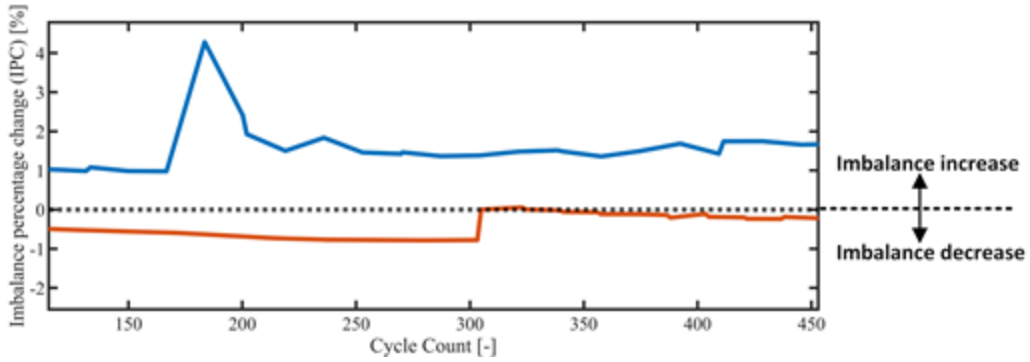
Life Balancing





Test Verification





- **Minimize capacity imbalances among units with minimal pack capacity reduction.**

LDES Project Locations and Partners

All Six Proposed Project Sites Located in Justice40 Areas

SAN DIEGO, CA

400kW/4000kWh LDES Deployment Sites

St. Stephen's Retirement Center

Jean C. McKinney Manor

ORANGEBURG, SC

(1) 200kW/2000kWh LDES Deployment Site

DENMARK, SC

(1) Small Scale LDES Educational Outreach Site

NEW ORLEANS, LA

(1) Small Scale LDES Educational Outreach Site

ATLANTA,GA

(1) 100kW/1000kWh LDES Deployment Site

Product

Smartville 360™

THE MOST **SUSTAINABLE**,
LOWEST-COST, AND
ENVIRONMENTALLY-FRIENDLY
BATTERY STORAGE IN THE WORLD

Project Team

The **HBCU Community Development Action Coalition (HBCU-CDAC)**, and its **Clean Energy Initiative (CEI)**, serving as a facilitator and intermediary, has aggregated four Historically Black Colleges and Universities across two states to help expand the reach of a public-private partnership with Smartville.

Dillard University is a historically Black institution that cultivates leaders who live ethically, think and communicate precisely, and act courageously to make the world a better place.

Denmark Technical College, a rural historically black college and university located in Denmark, SC, has a strategic focus centered on “Putting the Tech Back” through its programs and collaborations.

South Carolina State University and neighboring sister institution **Claflin State University** are leveraging a $40M mixed-use development. Additionally, the collaboration with HBCU-CDAC and Smartville builds on programs at SC State such as the climate-smart initiative and the James Clyburn Transportation Center funded by USDA and the Department of Transportation respectively.

Project Team

Luna Development Services

- Developer of the Railroad Corner redevelopment project
- Lead the construction and installation of Smartville's Energy Storage System

Endera

- Provide an all electric shuttle bus which will be retrofitted with V2B technology to add additional resiliency to the battery system
- Offer transportation services to students and other community members

Renaissance Equity Partners

- Create and implement a financing strategy to fund the Railroad Corner redevelopment project
- Facilitate community processes

Project Team

St. Stephen's Retirement Center

Jean C. McKinney Manor

JBM ENERGY SOLUTIONS

County of San Diego SDBCC Black Chamber of Commerce

St. Stephen's Retirement Center (SSRC) & Jean C. McKinney Manor

- SSRC is the first African-American owned Senior Residential facility in the state of California to be awarded a 202 HUD housing grant
- Jean C. McKinney Manor was awarded Sage Award for being the best built affordable housing complex in the nation

JBM Energy Solutions

- Project developer, installing solar+storage at the SSRC and Jean C. McKinney Manor

San Diego Black Chamber of Commerce

- Provide input on agreement with the IBEW Local 465 Labor Union and Construction Union of choice

Project Team

Southern Company Services

- Co-developer and consultant for the COX Automotive site

Cox Automotive

- Project and community outreach site host

Clark Atlanta University

- Co-create technical training programs for the Cox site, utilizing lessons learned from Clark Atlanta's lab and HBCU CDAD's lab

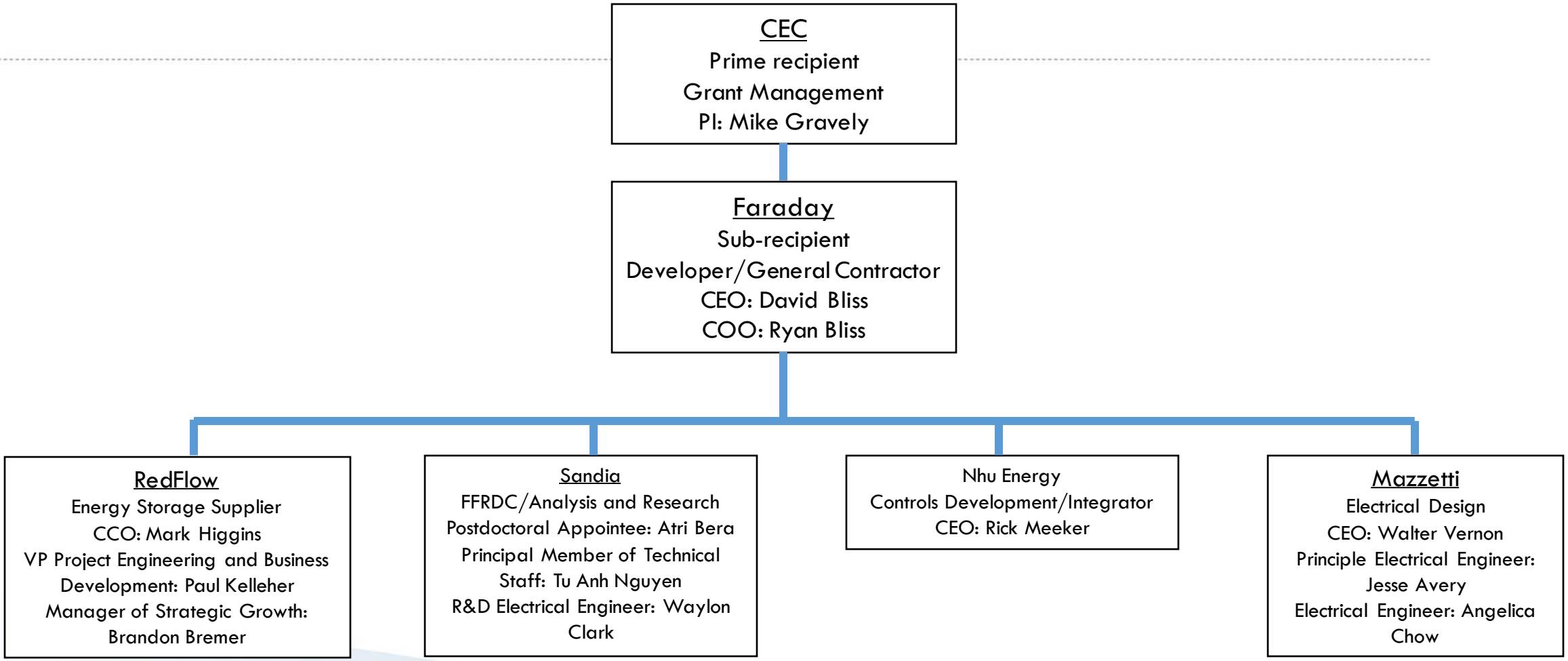
Application FOA 0002867--Applicant 1733 Behind-The-Meter Non-Lithium-Ion LDES for Support of Critical Facilities in Disadvantage Communities

Mike Gravely
Energy Research and Development Division
California Energy Commission

Valley Children's Hospital Microgrid Provides Critical Services to Disadvantaged Community

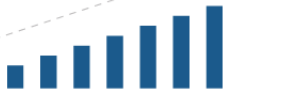
- Design, engineer, and build the largest LDES system for support of hospital emergency power and one of the largest tribal community LDES in the US
- Demonstrate the effectiveness of LDES microgrids to eliminate the need for conventional generation resources (diesel generators) as the standard for backup power at diverse, critical facility types in disadvantaged communities
- Document LDES performance to support emergency power during outages for a minimum 18 hours continuously and up to 96 hours in non-seismic events.
- Implement Community Outreach Plan--Demonstrate the ability of targeted deployments of large LDES systems to support Diversity, Equity, Inclusion, and Accessibility (DEIA) and Justice40 objectives including, but not limited to, directing economic, environment, and health benefits toward disadvantaged communities including tribes, as well as providing representation of these communities through a comprehensive engagement plan.
- Leverage federal and state connections to expand capabilities throughout California and the Nation

0002867-1733: Organizational Chart



PRIMARY FUNCTIONS OF THE

CALIFORNIA ENERGY COMMISSION



Advancing State Energy Policy

Investing in Energy Innovation

Developing Renewable Energy

Preparing for Energy Emergencies

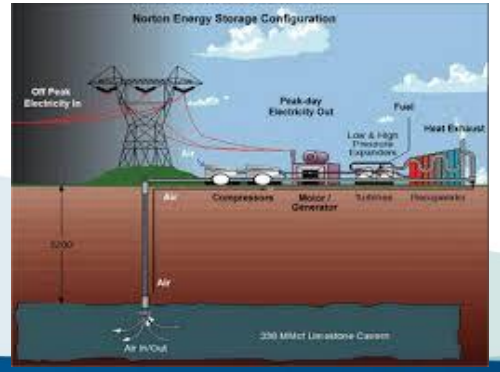
Achieving Energy Efficiency

Transforming Transportation

Overseeing Energy Infrastructure

Intergovernmental Collaboration

CA Energy Commission has Over a Decade of Experience Funding Energy Storage Technologies



0002867-1733: LDES Demonstration Community Benefits Plan

- **Labor Engagement:** The CEC will work with the Disadvantaged Communities Advisory Group (DACAG) ensuring required community engagement, including public workshops.
- **America's Workforce:** In collaboration with the state workforce development and union representatives, the CEC will foster the growth and development of the current and future workforce.
- **DEIA:** The CEC will create a Community Engagement Team to assess underrepresented groups, collaborate with diversity stakeholders, and make recommendations for diversity, equity, inclusion, and accessibility intervention.
- **Justice40:** Most, if not all, the benefits of the proposed energy storage work for the hospital will flow to the local disadvantaged communities, providing employment and, more importantly, increased medical services resiliency.

Oct. 2 – 3, 2023

Long-duration energy storage project

Jeff Plew, Executive Director Development

NEXTera ENERGY RESOURCES

NextEra Energy is a clean energy leader

Composed of two primary businesses

NextEra Energy, Inc.

- Fortune 200 company[1]
- 95-year track record
- $21 B operating revenue[2]
- 67 GW in operation [3]
- NYSE: NEE

NextEra Energy Resources, LLC

- World's largest generator of renewable energy from the wind and sun
- 34 GW net generating capacity[2]
- Operating in 40 states & Canada[2]

Florida Power and Light (FPL)

- One of the largest US electric utilities[2]
- 5.8 MM customer accounts[2]
- 31 GW net generating capacity[2]

1. Fortune's 2023 Rankings
2. As of 12/31/22 Annual Report 2022 Form 10-K
3. Gigawatts shown include assets operated by Energy Resources, including those owned by NextEra Energy Partners as of 3/31/23; excludes assets which have been sold parties but continue to be operated by Energy Resources. Investor Report 2022.

NextEra Energy's Real Zero™ goal

Our goal is to be completely carbon emissions free by no later than 2045

1

Decarbonize our own business, beginning with our goal to reach Real Zero emissions, without the need for carbon offsets, by no later than 2045. We've been prudently investing in decarbonizing our own operations for decades and this is an extension of our core values.

2

Decarbonize more of the U.S. power sector – investor-owned utilities, municipalities and cooperatives – through continued investments and innovation in wind, solar, storage and green hydrogen projects.

3

Lead the decarbonization of the U.S. economy – by working to become the preferred partner for customers to help them reduce or eliminate carbon emissions in their operations. We use our experts and data analytics to help our commercial and industrial customers reach their own net zero or strive to achieve Real Zero goals.

Our Real Zero™ efforts will utilize a variety of clean technologies, with long-duration energy storage playing a key role in reaching our carbon emissions free goals

Long-Duration Energy Storage Pilot

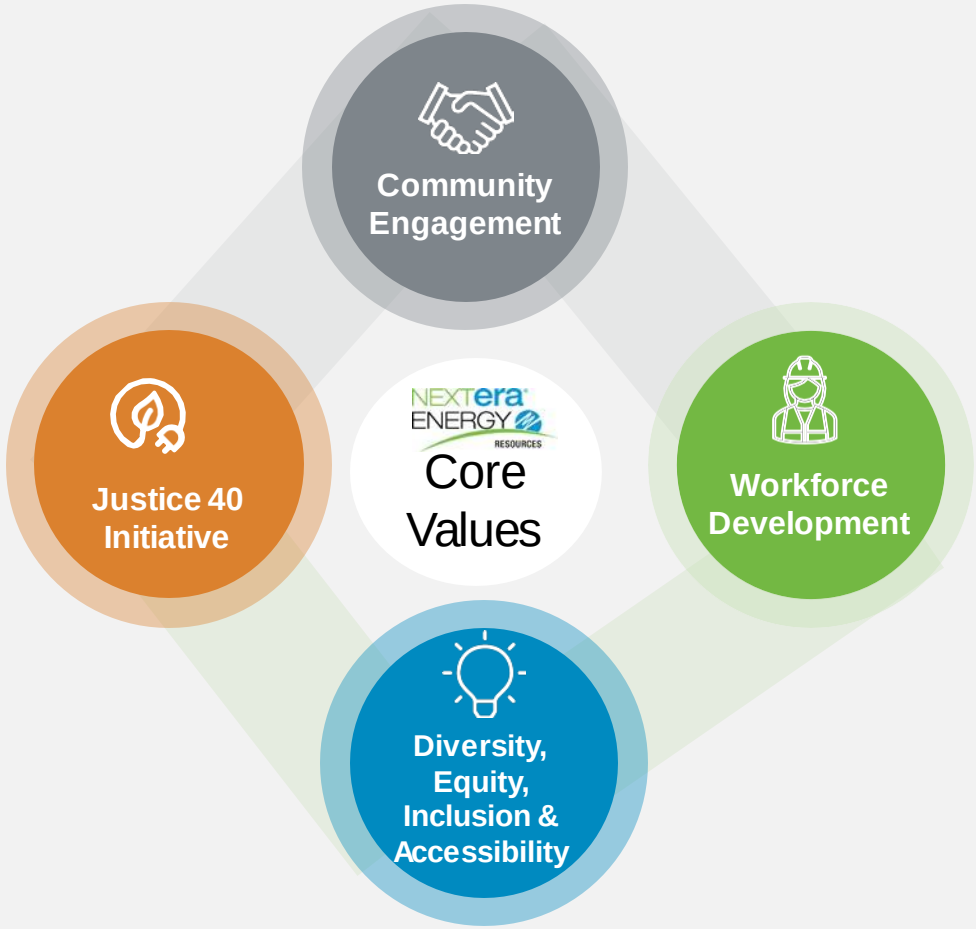
NextEra Energy Resources was selected to evaluate and demonstrate the viability of non-lithium battery technology for long-duration battery energy storage systems

Highlights:

- Pilot efforts will include development and deployment of several 10-hour duration battery energy storage projects using an aqueous zinc-bromine technology.
  - The proposed battery technology is safe, non-flammable and made in the U.S. with domestically sourced materials, limiting supply chain challenges.
- Proposed deployment at several sites in the Pacific Northwest and Upper Midwest – each of which have operational wind and/or solar facilities.
  - The expected benefits include increased capacity at the point of interconnection, reductions in green-house gas emissions, enhanced grid reliability, improved utilization of renewable energy generation facilities and lower future energy costs.

Corporate Community Benefits Program: Building strong relationships and supporting the communities we serve

Partnering with local technical and community colleges to advance student readiness for good paying jobs and careers in the energy sector.



Community Engagement

Develop community partnerships

Listen to local stakeholders

Follow through on our corporate values

Workforce Development

Renewable energy camps

Straight to work initiatives

NextEra Energy internship program

Diversity, Equity, Inclusion & Accessibility

Employee Resource Groups

Veterans

Supplier diversity

Justice 40 Initiative

Increase clean energy

Increased energy resiliency

Decreased environmental burden

DOE Office of Clean Energy Demonstrations

Long Duration Energy Storage Demonstration Projects

DE-FOA-0002867-1698

Teaming Structure – Division of Responsibility

Westinghouse	**Prime** Engineering, Procurement, Construction Support – *All Phases* Technoeconomic Analysis, Lifecycle Cost Analysis, Levelized Cost of Storage – *All Phases* Project Management, Controls & Reporting – *All Phases*
ECHOGEN power systems	**Technology Provider** Key Partner | sCO_2 Technology Provider Engineering, Procurement, Construction Support *(sCO_2 Equipment & Auxiliaries) – All Phases*
EPRI ELECTRIC POWER RESEARCH INSTITUTE	**Independent Industry Reviewer** Provide independent assessment of LDES efforts – *All Phases* Support technoeconomic analyses and technical reviews, lead independent testing Voice of industry collaboration
Shell	**Investor** Supporter of non-battery LDES with interest in future deployments Providing 3rd party cost share in Phase 1 with anticipated investment in future phases
ASRC ENERGY SERVICES a subsidiary of Arctic Slope Regional Corporation	**Construction Contractor | CBP Management** Alaska Native Corporation (ANC), demonstrated history of successful projects throughout Alaska Experienced Engineering & Construction Contractor for major energy projects Constructability Reviews, Planning, Permitting, Construction Installation, Commissioning & Start-up Community Benefits Plan development & implementation
GVEA Golden Valley Electric Association	**Utility & Commercial Partner** LDES Owner/Operator responsible for project siting, financing & power agreements

How Does a PTES System Work?

An sCO_2 heat pump and heat engine transform energy between electricity and heat

What is Supercritical CO_2 (sCO_2)?

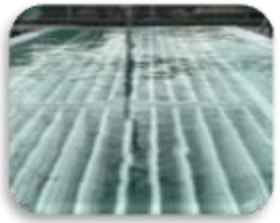
- Supercritical state of matter exists above a material's "critical point"; a function of temperature and pressure
- In this state, the material has properties of both a gas and liquid → One might visualize it as a "squishy liquid" or "thick gas"

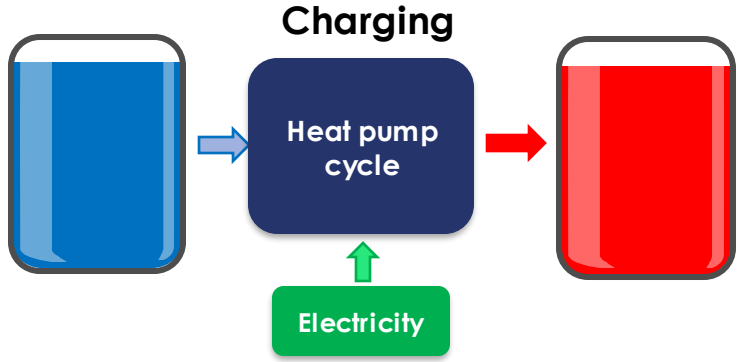
Charging Cycle (Heat Pump)

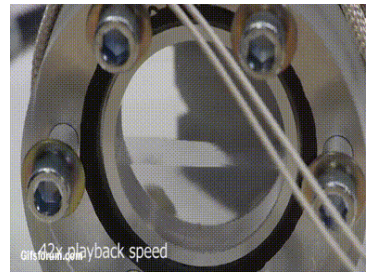
- sCO_2 heat pump cycle uses electrical power to move heat from a cold thermal reservoir (ice) to a hot thermal reservoir (oil and concrete)
- Stores energy as "thermal potential" – temperature difference between reservoirs
- By using a heat pump to charge the system, high RTE is obtained with low-cost, moderate-temperature thermal reservoirs

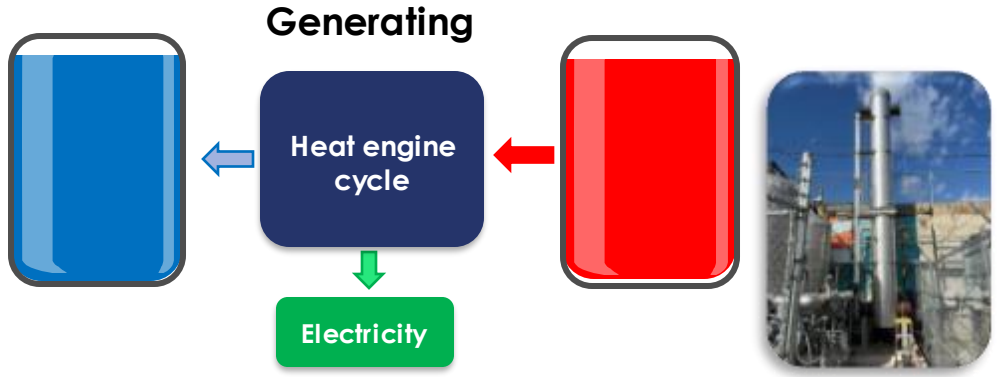
Generating Cycle (Heat Engine)

- sCO_2 heat engine (power) cycle uses thermal potential stored between reservoirs to generate electrical power
- Technology leverages 15 years of DOE-sponsored R&D and Echogen experience in sCO_2 power cycles
- Generating and charging cycle may be sized independently









Westinghouse

A Unique Solution for a Growing Energy Need
How PTES Benefits Medium and Long Duration Storage Needs

Engineered to fill the storage gap to accelerate decarbonization	
Low Cost	Offers a lower levelized cost than currently available technology – capex, opex and end-of-life
Scalable	No topographical or geologic dependencies; can be built anywhere with a fully domestic supply chain
Flexible	Modular solution that can uniquely serve high power needs at both medium and long GWh durations **(8 hours to days).** Provides grid inertia and other ancillary services unlike batteries.
Proven Components	Owing to its optimized operating temperature, much of the PTES system is based in existing experience. Most components are either "off-the-shelf" or derivative of existing components.
Minimal Degradation	Longest asset life. Unlike lithium or chemical batteries, power generation equipment has no loss in capacity or capability over time.
Sustainable	No chemical, fire or safety risks; Uniquely capable of utilizing waste materials (i.e., coal fly ash); Long asset operational lifespan; low carbon footprint and fully recyclable at end-of-life

Nominal system size 1,200 MWh

1,200 MWh footprint < 23,000 m^2 (6 acre)

Total Cost of Ownership Compared to li-ion ($/kWh) 20 years	**100MW/1200MWh System**	**PTES**
	Overnight Capital	<60%
	Capex (replace cells)	0%
	O&M	<60%
	Round Trip Efficiency (RTE)	50-60%
	Total ownership cost	**<50% of li-ion**

Westinghouse

Community Benefits – Impacts

Positive Impacts

Location, Location, Location

- Existing coal plant land and infrastructure
- Preserve local jobs
- Military, mining, education, tourism

Environmental

- EPA non-attainment area- where air pollution levels persistently exceed the national ambient air quality standards
- Improve air quality via reduction of coal and oil-fired power generation
- Reduced carbon emissions

Justice 40

- Fairbanks, Healy and the Native Village of Cantwell: Justice 40 communities – significant local content to deliver project
- The vast majority of ASRC shareholders live in Alaska, and about half of ASRC shareholders live within Justice 40 communities across the North Slope

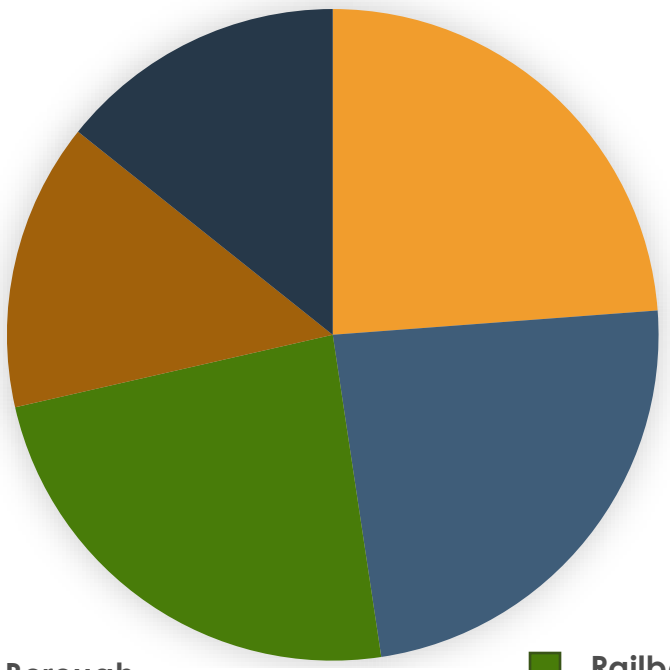
Negative Impacts

- The negative impacts of this project are expected to be minimal, with potential traffic and roadway modification during construction.

Winter in Fairbanks Alaska. Photo Credit: Daily News-Miner

Community Benefits – Outreach & Engagement

Establish Project Advisory Committee



- **Denali Borough**
- **Development Entities**
  - Alaska Center for Energy and Power (UAF)
  - Fairbanks Economic Development Corporation
  - Denali and Fairbanks Chamber of Commerce
  - Alaska Energy Authority
- **Railbelt Consumers**
- **National Parks**
- **Outlying Communities**
  - Fairbanks North Star Borough
  - Native Village of Cantwell
  - City of Anderson

Regulatory Stakeholder Engagement

Region	Boroughs	Communities
Notifying Regional Entities	**Denali Borough**	**Community(ies)**
• Denali Borough • Doyon Limited • Ahtna, Inc • Tanana Chiefs Conference	• Assembly • Planning Commission	• Tribe • City Municipality • ANCSA Village Corporation • Public (residents)

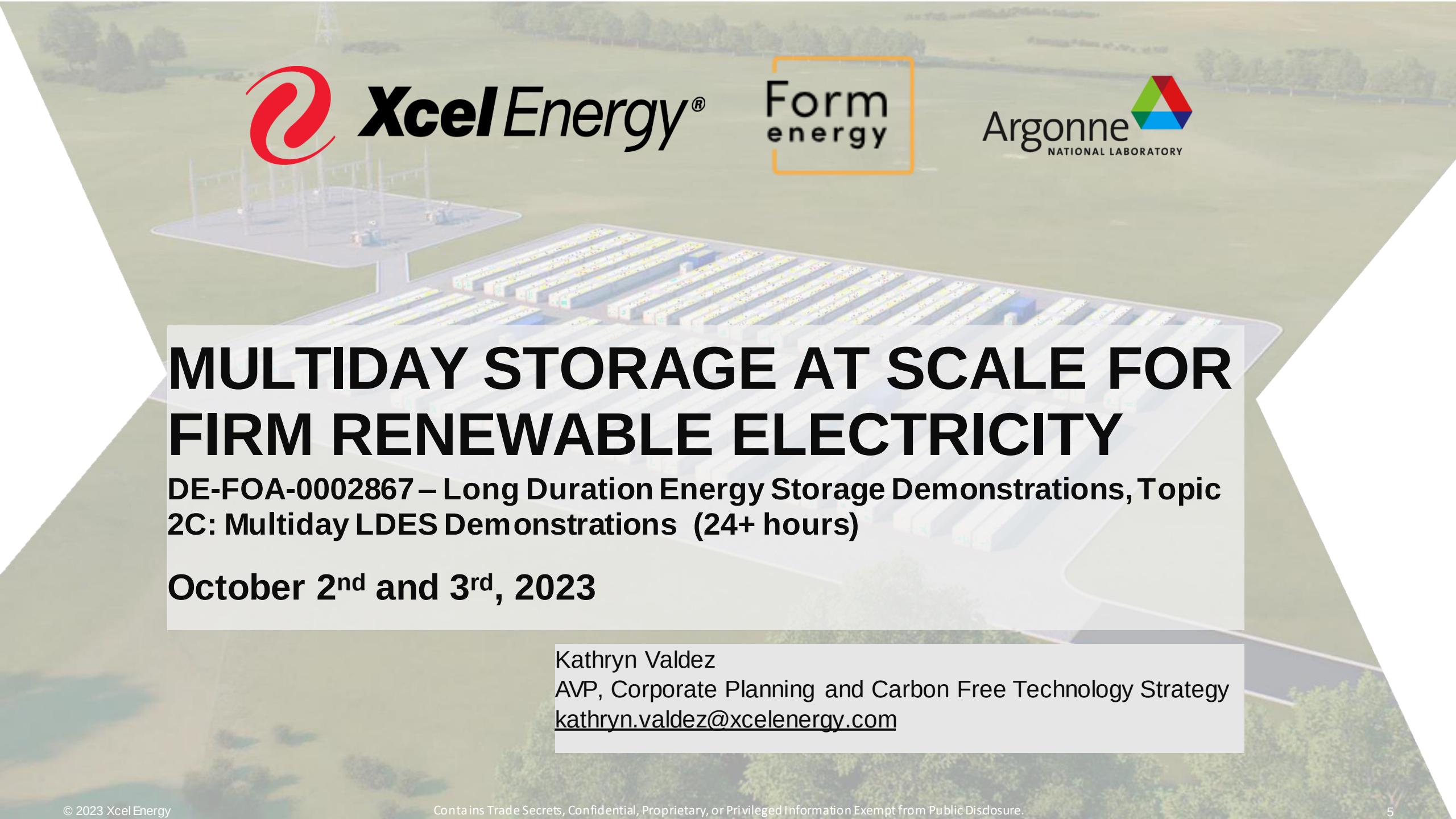
Outreach Methods

Project Website
Information & means of two-way communication

Mailing List

Townhalls
Utilize existing Borough structure

National Park Service
Renewables within the Arctic
Education demonstrations and discussions for all ages



MULTIDAY STORAGE AT SCALE FOR FIRM RENEWABLE ELECTRICITY

DE-FOA-0002867 – Long Duration Energy Storage Demonstrations, Topic 2C: Multiday LDES Demonstrations (24+ hours)

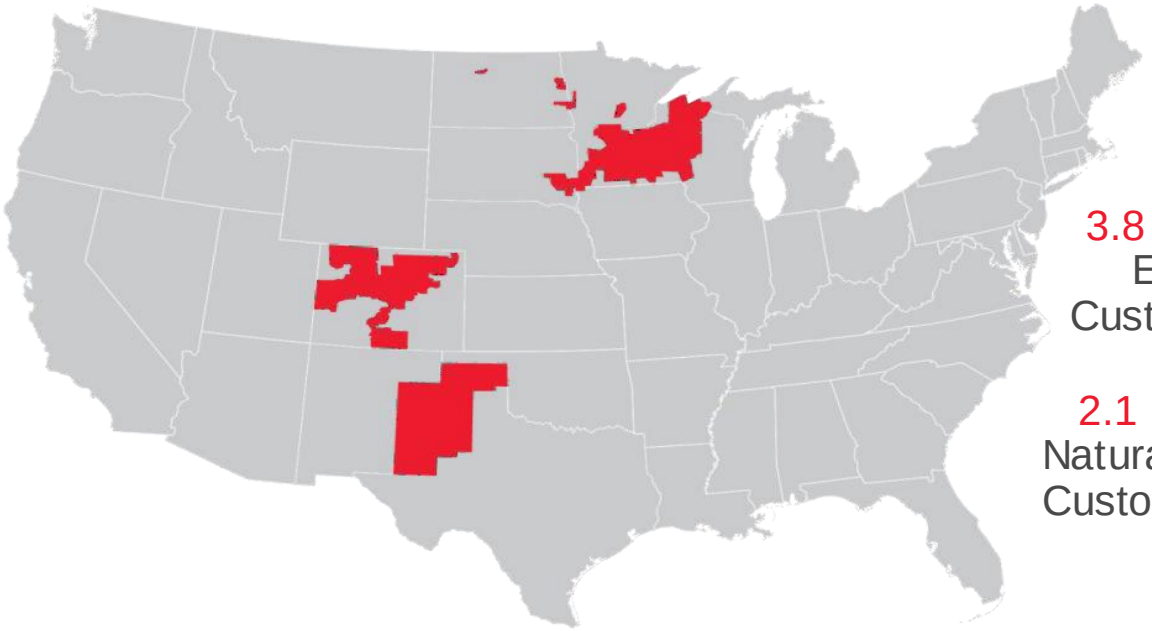
October 2nd and 3rd, 2023

Kathryn Valdez
AVP, Corporate Planning and Carbon Free Technology Strategy
kathryn.valdez@xcelenergy.com

Project Overview

Deploy Multiday Storage (MDS) Systems, 10 MW / 100-hour discharge, at two retiring coal plants

Xcel Energy operates in 8 states and serves our communities with over 11 GW of renewable energy. Long duration energy storage is a strategic solution to provide our customers with carbon-free electricity by 2050.

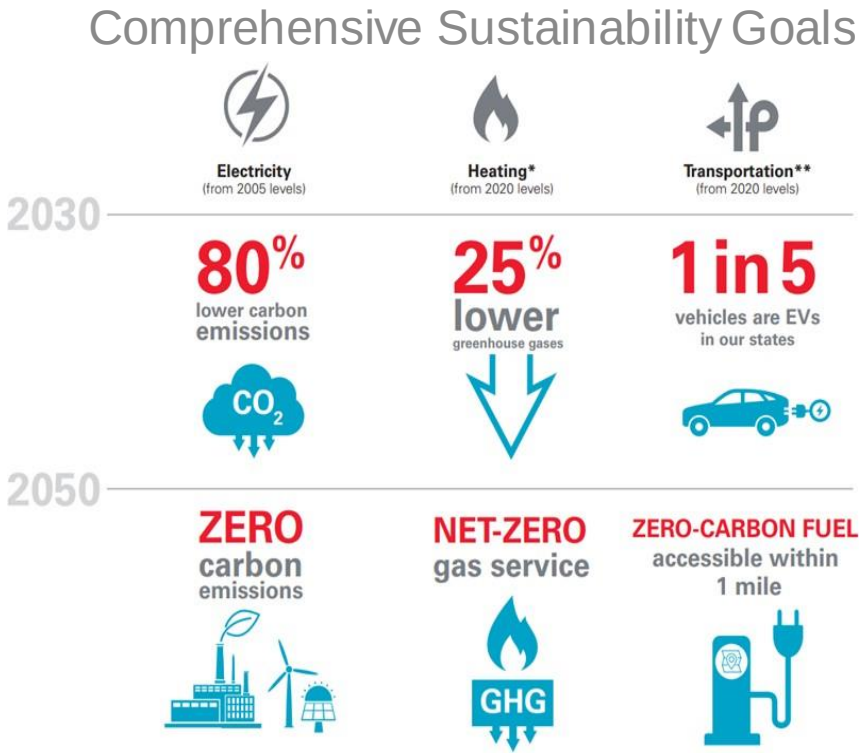


3.8 Million Electric Customers

2.1 Million Natural Gas Customers

Project Objectives:

Accelerate deployment of LDES via strategic partnership, technology, & scale



Strategic Partnership

Together, we can accelerate deployment of LDES at scale

Xcel Energy®

Deploy & Operate

Who: Regulated utility with large renewable portfolio and aggressive decarbonization goals

What: Deploy two multiday storage systems connected to the Bulk Power System

Role: Project Developer and Grid Operator

Form energy

Develop & Manufacture

Who: A startup leading the field of LDES

What: Scale manufacturing of iron-air batteries, TEA-LCA, collaborate on CBP

Role: Vendor (Technology provider for 100-hour duration iron-air batteries & LDES analysis software)

Argonne NATIONAL LABORATORY

Value & Validate

Who: World recognized research institution delivering end-to-end leadership in battery technology, markets, workforce, and Justice40

What: Validate and show LDES value, collaborate on CBP

Role: Subrecipient

city of PUEBLO colorado

THE CITY OF BECKER MINNESOTA

Transition & Grow

Who: Communities, workers, beneficiaries of clean energy

What: Provide project input & collaboration

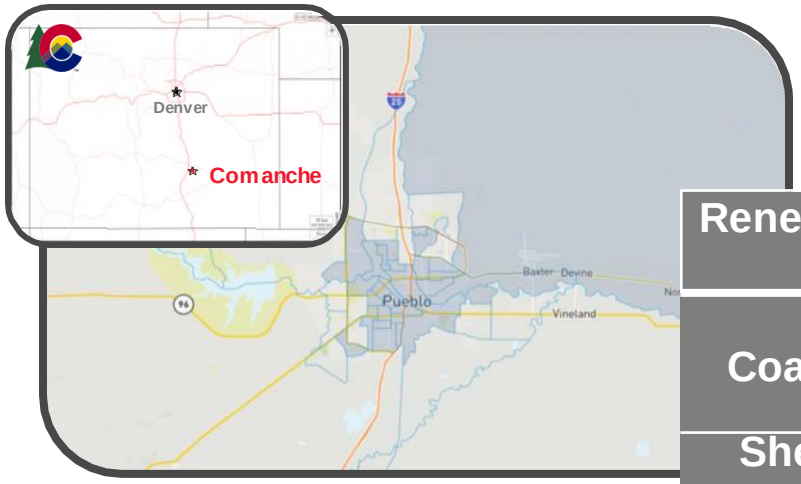
Role: Stakeholders

Community Project Locations

Deploy Multiday Storage (MDS) Systems, 10 MW / 100-hour discharge, at two retiring coal plants

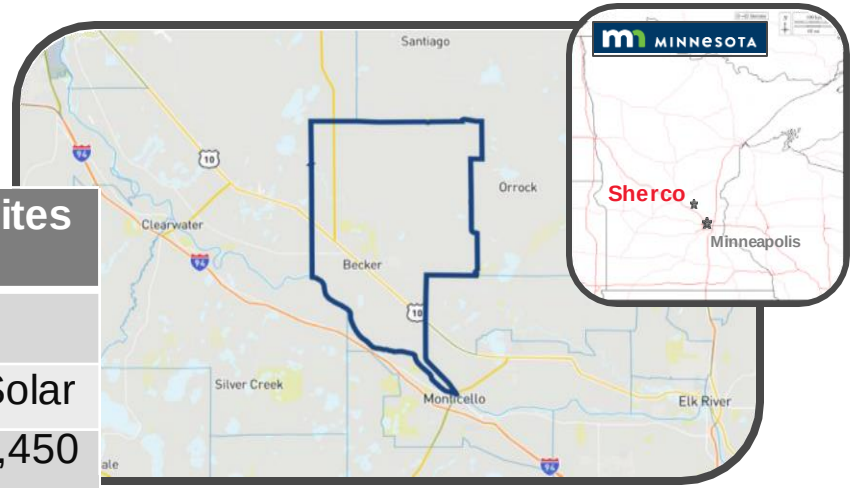
Pueblo, Colorado

- Population: 111,000
- Comanche 1,100 MW coal generation plant retires 2030
- Designated as a DAC
- Pueblo Generation Study & Advisory Group

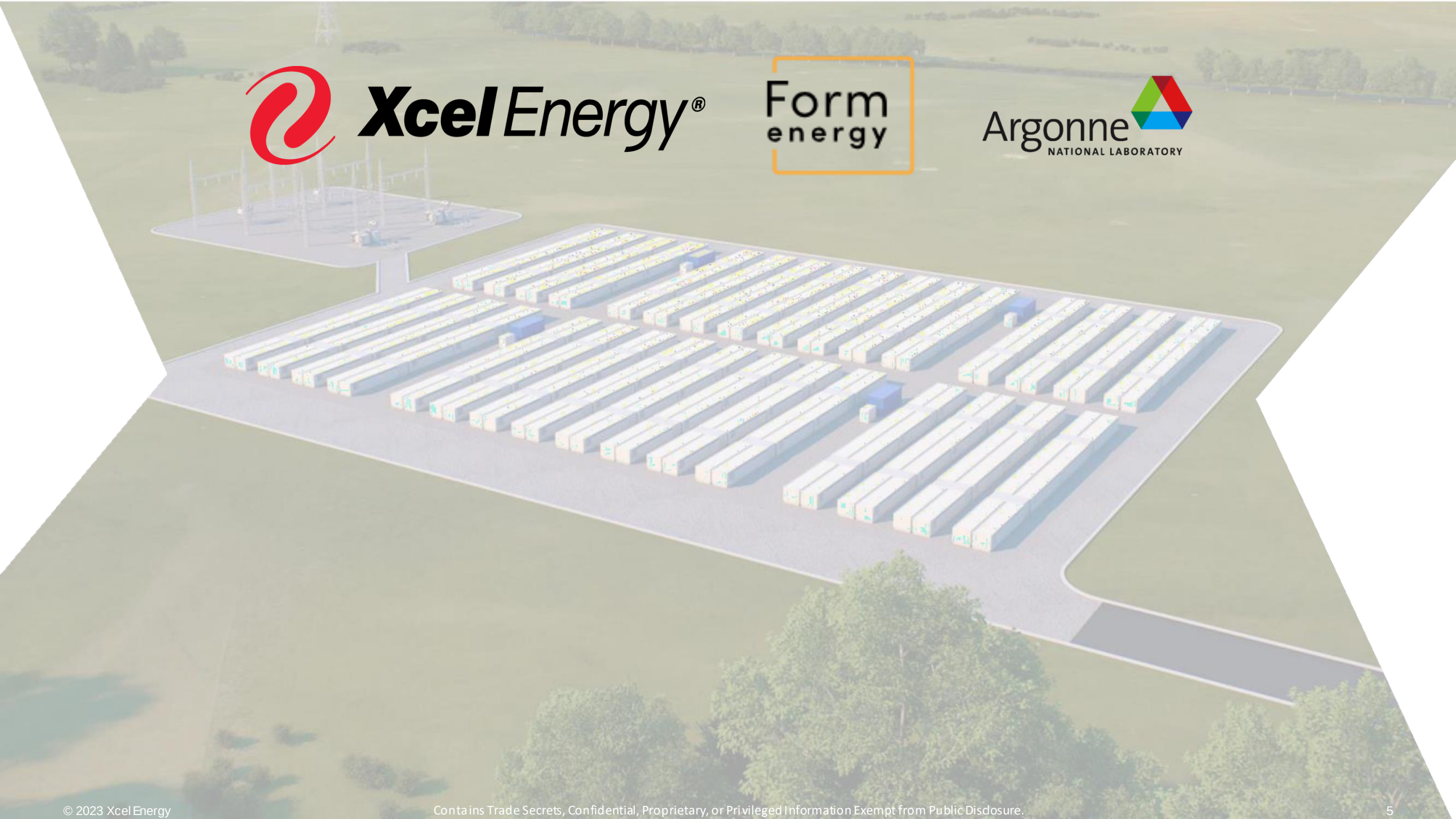


Becker, Minnesota

- Population: 5,000
- Sherco 2,200 MW coal generation plant retires 2030
- Master Plan – framework & vision for future economic development in Becker



Renewable Generation at Proposed Project Sites (MW)					
Coal Retirements		2023		2030	
		Wind	Solar	Wind	Solar
Sherco	2200	0	0	1,350	1,450
Comanche	1100	200	1,100	3,500	3,000



Next Steps & Opportunities for Engagement

Next Steps

- **Award Negotiations:** DOE OCED will commence negotiations with project selectees.
- **After Award:** ***IF the projects are given an award***
  - Selectees enter into cooperative agreement with DOE OCED for Phase One
  - Phase One includes Detailed Project Plans (phase anticipated to last up to a year and half)
  - Future phases subject to Go/No Go Decisions
  - OCED will work with selectees to comply with the National Environmental Policy Act (NEPA) where relevant
- **Opportunities for Engagement:**
  - Reach out to the project team in your community or OCED anytime
  - Community engagements, e.g., CBP
  - NEPA process & associated public meetings

National Environmental Policy Act

- **What is NEPA?** NEPA is a federal law that requires agencies like DOE to assess the potential environmental impacts of projects
- **Does NEPA Apply?** DOE will complete a NEPA review for the activities and may determine that the activities fall under one of the following categories:

Categorical Exclusion (CX)	Environmental Assessment (EA)	Environmental Impact Statement (EIS)

• Categories of actions that DOE has determined, by regulation, do not individually or cumulatively have a significant effect on the human environment and for which, therefore, neither an EA nor an EIS normally is required
• **Categorical exclusions <u>do not involve public review/comment</u>, but are posted for public review once they are complete**
	• A brief analysis to determine whether an EIS is required
	• **<u>Two public review/comment periods</u>:**
	  • **Comment period and public scoping meeting after the notification of DOE's decision to prepare an EA**
	  • **Comment period and public meeting after the EA is drafted**
		• A detailed statement for major federal actions significantly affecting the human environment
		• **<u>Two public review/comment periods</u>:**
		  • **Comment period and public scoping meeting after the notification of the DOE's decision to prepare an EIS**
		  • **Comment period and public hearing after the EIS has been drafted**

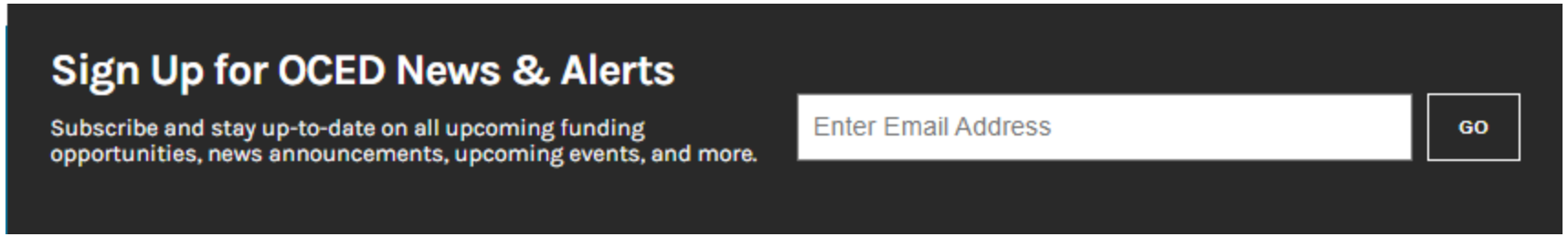
NEPA Resources: OCED's NEPA Guide

Q&A Session

For More Information

- To reach DOE OCED about the LDES projects:
  - Email: **OCED_LDES@hq.doe.gov**

- Subscribe to receive OCED news and updates, including new funding opportunities – visit https://www.energy.gov/oced/ and scroll to the bottom to sign up.



Project Emails – Western US

- If you have questions about specific projects, please reach out to DOE OCED via the project inbox directly:

Project Name	Location(s)	Email
CARES	Santa Fe, NM Petaluma, CA	CARES_LDES@hq.doe.gov
SMART	San Diego, CA	SMART_LDES@hq.doe.gov
CHARGES	Madera, CA	CHARGES_LDES@hq.doe.gov
MIND	Pueblo, CO	MIND_LDES@hq.doe.gov
FUZES	Marrow County, OR	FUZES_LDES@hq.doe.gov
POLAR	Fairbanks, AK	POLAR_LDES@hq.doe.gov

Project Contacts (Team leads)

Company	Point of Contact	Email
Rejoule	Tobias Hecht	thecht@rejouleenergy.com
Smartville	Michael Ferry	mferry@smartville.io
California Energy Commission	Michael Gravely	mike.gravely@energy.ca.gov
NextEra	Jeffrey Plew	jeffrey.plew@nexteraenergy.com
Westinghouse	Holly K Millard-Burns	milla1hk@westinghouse.com
Northern States Energy (Xcel)	Kathryn Valdez	Kathryn.Valdez@xcelenergy.com

Resources

- LDES Program
  - OCED_LDES.pdf (energy.gov)
  - LDES Selections for Award Negotiations | Department of Energy
  - Long Duration Energy Storage - Pathways to Commercial Liftoff
- Justice40 Initiative
  - https://www.energy.gov/diversity/justice40-initiative
- Energy Justice Dashboard (BETA)
  - https://energyjustice.egs.anl.gov/
- Climate and Economic Justice Screening Tool
  - https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5

Thank you!

OCED

Office of Clean Energy Demonstrations

For more information, please visit energy.gov/OCED